

# SEQUENCE LISTING



<110> Van Mellaert, Herman  
 Botterman, Johan  
 Van Rie, Jeroen  
 Joos, Henk

<120> RECOMBINANT PLANT EXPRESSING NON-COMPETITIVELY BINDING Bt  
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 <141> 2004-03-26

<150> 09/661.061  
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Leu Gly Thr Leu Arg Val Thr Phe Thr Gly Arg Leu Pro Gln Ser Tyr  
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Tyr Ile Arg Phe Arg Tyr Ala Ser Val Ala Asn Arg Ser Gly Thr Phe  
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Phe Thr Pro Ile Thr Phe Ser Arg Ala Gln Glu Glu Phe Asp Leu Tyr  
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Ala Thr Phe Glu Ala Glu Tyr Asp Leu Glu Arg Ala Gln Lys Val Val  
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Asn Ala Leu Phe Thr Ser Thr Asn Gln Leu Gly Leu Lys Thr Asp Val  
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Thr Asp Tyr His Ile Asp Gln Val Ser Asn Leu Val Ala Cys Leu Ser  
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Asp Glu Phe Cys Leu Asp Glu Lys Arg Glu Leu Ser Glu Lys Val Lys  
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His Ala Lys Arg Leu Ser Asp Glu Arg Asn Leu Leu Gln Asp Pro Asn  
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Phe Arg Gly Ile Asn Arg Gln Pro Asp Arg Gly Trp Arg Gly Ser Thr  
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Asp Ile Thr Ile Gln Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val  
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Thr Leu Pro Gly Thr Phe Asp Glu Cys Tyr Pro Thr Tyr Leu Tyr Gln  
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Lys Ile Asp Glu Ser Lys Leu Lys Ala Tyr Thr Arg Tyr Gln Leu Arg  
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Gly Tyr Ile Glu Asp Ser Gln Asp Leu Glu Ile Tyr Leu Ile Arg Tyr  
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Asn Ala Lys His Glu Ile Val Asn Val Pro Gly Thr Gly Ser Leu Trp  
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Pro Leu Ser Val Glu Asn Gln Ile Gly Pro Cys Gly Glu Pro Asn Arg  
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Cys Ala Pro His Leu Glu Trp Asn Pro Asp Leu His Cys Ser Cys Arg  
785 790 795 800

Asp Gly Glu Lys Cys Ala His His Ser His His Phe Ser Leu Asp Ile  
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Asp Val Gly Cys Thr Asp Leu Asn Glu Asp Leu Gly Val Trp Val Ile  
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Phe Lys Ile Lys Thr Gln Asp Gly His Ala Arg Leu Gly Asn Leu Glu  
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Phe Leu Glu Glu Lys Pro Leu Leu Gly Glu Ala Leu Ala Arg Val Lys  
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Arg Ala Glu Lys Lys Trp Arg Asp Lys Arg Glu Thr Leu Gln Leu Glu  
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Thr Thr Ile Val Tyr Lys Glu Ala Lys Glu Ser Val Asp Ala Leu Phe  
885 890 895

Val Asn Ser Gln Tyr Asp Arg Leu Gln Ala Asp Thr Asn Ile Ala Met  
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Ile His Ala Ala Asp Lys Arg Val His Arg Ile Arg Glu Ala Tyr Leu  
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Pro Glu Leu Ser Val Ile Pro Gly Val Asn Ala Ala Ile Phe Glu Glu  
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Leu Glu Glu Arg Ile Phe Thr Ala Phe Ser Leu Tyr Asp Ala Arg Asn  
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Ile Ile Lys Asn Gly Asp Phe Asn Asn Gly Leu Leu Cys Trp Asn Val  
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Lys Gly His Val Glu Val Glu Glu Gln Asn Asn His Arg Ser Val Leu  
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Val Ile Pro Glu Trp Glu Ala Glu Val Ser Gln Glu Val Arg Val Cys  
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Asp Glu Leu Lys Phe Asn Asn Cys Val Glu Glu Glu Val Tyr Pro  
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Val Thr Lys Glu Leu Glu Tyr Phe Pro Glu Thr Asp Lys Val Trp  
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 Asn Asn Gln Asn Gln Cys Ile Pro Tyr Asn Cys Leu Ser Asn Pro  
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 Ile Asp Ile Ser Leu Ser Leu Val Gln Phe Met Val Ser Asn Phe Val  
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tta gaa gga tta gaa aac aat tta aat ata tat gtg gaa gca ttt aaa Leu Glu Gly Leu Glu Asn Asn Leu Asn Ile Tyr Val Glu Ala Phe Lys 100 105 110	575
gaa tgg gaa gaa gat cct aat aat cca gaa acc agg acc aga gta att Glu Trp Glu Glu Asp Pro Asn Asn Pro Glu Thr Arg Thr Arg Val Ile 115 120 125	623
gat cgc ttt cgt ata ctt gat ggg cta ctt gaa agg gac att cct tcg Asp Arg Phe Arg Ile Leu Asp Gly Leu Leu Glu Arg Asp Ile Pro Ser 130 135 140	671
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gcg gcc aat ctg cat cta gct ata tta aga gat tct gta att ttt gga Ala Ala Asn Leu His Leu Ala Ile Leu Arg Asp Ser Val Ile Phe Gly 160 165 170 175	767
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cta att agg cat att gat gaa tat gct gat cac tgt gca aat acg tat Leu Ile Arg His Ile Asp Glu Tyr Ala Asp His Cys Ala Asn Thr Tyr 195 200 205	863
aat cgg gga tta aat aat tta ccg aaa tct acg tat caa gat tgg ata Asn Arg Gly Leu Asn Asn Leu Pro Lys Ser Thr Tyr Gln Asp Trp Ile 210 215 220	911
aca tat aat cga tta cgg aga gac tta aca ttg act gta tta gat atc Thr Tyr Asn Arg Leu Arg Arg Asp Leu Thr Leu Thr Val Leu Asp Ile 225 230 235	959
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Glu Ser Ser Ala Ile Arg Asn Pro His Leu Phe Asp Ile Leu Asn Asn	
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Leu Thr Ile Phe Thr Asp Trp Phe Ser Val Gly Arg Asn Phe Tyr Trp	
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Gly Gly His Arg Val Ile Ser Ser Leu Ile Gly Gly Gly Asn Ile Thr	
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Thr Phe Asn Gly Pro Val Phe Arg Thr Leu Ser Asn Pro Thr Leu Arg	
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Leu Leu Gln Gln Pro Trp Pro Ala Pro Pro Phe Asn Leu Arg Gly Val	
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Glu Gly Val Glu Phe Ser Thr Pro Thr Asn Ser Phe Thr Tyr Arg Gly	
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aga ggt acg gtt gat tct tta act gaa tta ccg cct gag gat aat agt	1487
Arg Gly Thr Val Asp Ser Leu Thr Glu Leu Pro Pro Glu Asp Asn Ser	
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Val Pro Pro Arg Glu Gly Tyr Ser His Arg Leu Cys His Ala Thr Phe	
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Val Gln Arg Ser Gly Thr Pro Phe Leu Thr Thr Gly Val Val Phe Ser	
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Trp Thr His Arg Ser Ala Thr Leu Thr Asn Thr Ile Asp Pro Glu Arg	
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Ile Asn Gln Ile Pro Leu Val Lys Gly Phe Arg Val Trp Gly Gly Thr	
465 470 475	
tct gtc att aca gga cca gga ttt aca gga ggg gat atc ctt cga aga	1727
Ser Val Ile Thr Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg	
480 485 490 495	
aat acc ttt ggt gat ttt gta tct cta caa gtc aat att aat tca cca	1775
Asn Thr Phe Gly Asp Phe Val Ser Leu Gln Val Asn Ile Asn Ser Pro	
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cca acg tat tta tat cag aaa ata gat gag tcg aaa tta aaa gct tat Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu Lys Ala Tyr 740 745 750	2495
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Val Thr Ala	Tyr Lys Glu Gly Tyr	Gly Glu Gly Cys Val	Thr Ile	
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 Gly Pro Ser Gln Trp Asp Ala Phe Leu Val Gln Ile Glu Gln Leu Ile  
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Gly Gln Leu Thr Arg Glu Val Tyr Thr Asp Pro Leu Ile Asn Phe Asn  
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Ser Ser Ala Ile Arg Asn Pro His Leu Phe Asp Ile Leu Asn Asn Leu  
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Thr Ile Phe Thr Asp Trp Phe Ser Val Gly Arg Asn Phe Tyr Trp Gly  
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Gln Arg Ser Gly Thr Pro Phe Leu Thr Thr Gly Val Val Phe Ser Trp  
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Asn Gln Ile Pro Leu Val Lys Gly Phe Arg Val Trp Gly Gly Thr Ser  
465 470 475 480

Val Ile Thr Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu Arg Arg Asn  
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Leu Thr Ser Arg Thr Phe Arg Tyr Thr Asp Phe Ser Asn Pro Phe Ser  
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Phe Arg Ala Asn Pro Asp Ile Ile Gly Ile Ser Glu Gln Pro Leu Phe  
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Gly Ala Gly Ser Ile Ser Ser Gly Glu Leu Tyr Ile Asp Lys Ile Glu  
595 600 605

Ile Ile Leu Ala Asp Ala Thr Phe Glu Ala Glu Ser Asp Leu Glu Arg  
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Ala Gln Lys Ala Val Asn Ala Leu Phe Thr Ser Ser Asn Gln Ile Gly  
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Leu Lys Thr Asp Val Thr Asp Tyr His Ile Asp Gln Val Ser Asn Leu  
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Val Asp Cys Leu Ser Asp Glu Phe Cys Leu Asp Glu Lys Arg Glu Leu  
660 665 670

Ser Glu Lys Val Lys His Ala Lys Arg Leu Ser Asp Glu Arg Asn Leu  
675 680 685

Leu Gln Asp Pro Asn Phe Arg Gly Ile Asn Arg Gln Pro Asp Arg Gly  
690 695 700

Trp Arg Gly Ser Thr Asp Ile Thr Ile Gln Gly Gly Asp Asp Val Phe  
705 710 715 720

Lys Glu Asn Tyr Val Thr Leu Pro Gly Thr Val Asp Glu Cys Tyr Pro  
725 730 735

Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu Lys Ala Tyr Thr  
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Arg Tyr Glu Leu Arg Gly Tyr Ile Glu Asp Ser Gln Asp Leu Glu Ile  
755 760 765

Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu Ile Val Asn Val Pro Gly  
770 775 780

Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln Ser Pro Ile Gly Lys Cys  
785 790 795 800

Gly Glu Pro Asn Arg Cys Ala Pro His Leu Glu Trp Asn Pro Asp Leu  
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Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys Ala His His Ser His His  
820 825 830

Phe Thr Leu Asp Ile Asp Val Gly Cys Thr Asp Leu Asn Glu Asp Leu  
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Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp Gly His Ala Arg  
850 855 860

Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu Leu Gly Glu Ala  
865 870 875 880

Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg Asp Lys Arg Glu  
885 890 895

Lys Leu Gln Leu Glu Thr Asn Ile Val Tyr Lys Glu Ala Lys Glu Ser  
900 905 910

Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Arg Leu Gln Val Asp  
915 920 925

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Ser Thr	Val Gln	Thr Gly	Ile Asn	Ile Ala	Gly Arg	Ile Leu	Gly Val	
	50		55		60			
Leu Gly	Val Pro	Phe Ala	Gly Gln	Leu Ala	Ser Phe	Tyr Ser	Phe Leu	
65		70		75		80		
Val Gly	Glu Leu	Trp Pro	Arg Gly	Arg Asp	Gln Trp	Glu Ile	Phe Leu	
	85		90			95		
Glu His	Val Glu	Gln Leu	Ile Asn	Gln Gln	Ile Thr	Glu Asn	Ala Arg	
	100		105			110		
Asn Thr	Ala Leu	Ala Arg	Leu Gln	Gly Leu	Gly Asp	Ser Phe	Arg Ala	

115	120	125
Tyr Gln Gln Ser Leu Glu Asp Trp Leu Glu Asn Arg Asp Asp Ala Arg 130 135 140		
Thr Arg Ser Val Leu His Thr Gln Tyr Ile Ala Leu Glu Leu Asp Phe 145 150 155 160		
Leu Asn Ala Met Pro Leu Phe Ala Ile Arg Asn Gln Glu Val Pro Leu 165 170 175		
Leu Met Val Tyr Ala Gln Ala Ala Asn Leu His Leu Leu Leu Leu Arg 180 185 190		
Asp Ala Ser Leu Phe Gly Ser Glu Phe Gly Leu Thr Ser Gln Glu Ile 195 200 205		
Gln Arg Tyr Tyr Glu Arg Gln Val Glu Arg Thr Arg Asp Tyr Ser Asp 210 215 220		
Tyr Cys Val Glu Trp Tyr Asn Thr Gly Leu Asn Ser Leu Arg Gly Thr 225 230 235 240		
Asn Ala Ala Ser Trp Val Arg Tyr Asn Gln Phe Arg Arg Asp Leu Thr 245 250 255		
Leu Gly Val Leu Asp Leu Val Ala Leu Phe Pro Ser Tyr Asp Thr Arg 260 265 270		
Thr Tyr Pro Ile Asn Thr Ser Ala Gln Leu Thr Arg Glu Val Tyr Thr 275 280 285		
Asp Ala Ile Gly Ala Thr Gly Val Asn Met Ala Ser Met Asn Trp Tyr 290 295 300		
Asn Asn Asn Ala Pro Ser Phe Ser Ala Ile Glu Ala Ala Ala Ile Arg 305 310 315 320		
Ser Pro His Leu Leu Asp Phe Leu Glu Gln Leu Thr Ile Phe Ser Ala 325 330 335		
Ser Ser Arg Trp Ser Asn Thr Arg His Met Thr Tyr Trp Arg Gly His 340 345 350		
Thr Ile Gln Ser Arg Pro Ile Gly Gly Gly Leu Asn Thr Ser Thr His		

355	360	365
Gly Ala Thr Asn Thr Ser Ile Asn Pro Val Thr Leu Arg Phe Ala Ser 370	375	380
Arg Asp Val Tyr Arg Thr Glu Ser Tyr Ala Gly Val Leu Leu Trp Gly 385	390	395 400
Ile Tyr Leu Glu Pro Ile His Gly Val Pro Thr Val Arg Phe Asn Phe 405	410	415
Thr Asn Pro Gln Asn Ile Ser Asp Arg Gly Thr Ala Asn Tyr Ser Gln 420	425	430
Pro Tyr Glu Ser Pro Gly Leu Gln Leu Lys Asp Ser Glu Thr Glu Leu 435	440	445
Pro Pro Glu Thr Thr Glu Arg Pro Asn Tyr Glu Ser Tyr Ser His Arg 450	455	460
Leu Ser His Ile Gly Ile Ile Leu Gln Ser Arg Val Asn Val Pro Val 465	470	475 480
Tyr Ser Trp Thr His Arg Ser Ala Asp Arg Thr Asn Thr Ile Gly Pro 485	490	495
Asn Arg Ile Thr Gln Ile Pro Met Val Lys Ala Ser Glu Leu Pro Gln 500	505	510
Gly Thr Thr Val Val Arg Gly Pro Gly Phe Thr Gly Gly Asp Ile Leu 515	520	525
Arg Arg Thr Asn Thr Gly Gly Phe Gly Pro Ile Arg Val Thr Val Asn 530	535	540
Gly Pro Leu Thr Gln Arg Tyr Arg Ile Gly Phe Arg Tyr Ala Ser Thr 545	550	555 560
Val Asp Phe Asp Phe Phe Val Ser Arg Gly Gly Thr Thr Val Asn Asn 565	570	575
Phe Arg Phe Leu Arg Thr Met Asn Ser Gly Asp Glu Leu Lys Tyr Gly 580	585	590
Asn Phe Val Arg Arg Ala Phe Thr Thr Pro Phe Thr Phe Thr Gln Ile		

595					600					605					
Gln	Asp	Ile	Ile	Arg	Thr	Ser	Ile	Gln	Gly	Leu	Ser	Gly	Asn	Gly	Glu
610						615					620				
Val	Tyr	Ile	Asp	Lys	Ile	Glu	Ile	Ile	Pro	Val	Thr	Ala	Thr	Phe	Glu
625					630					635					640
Ala	Glu	Tyr	Asp	Leu	Glu	Arg	Ala	Gln	Glu	Ala	Val	Asn	Ala	Leu	Phe
				645					650					655	
Thr	Asn	Thr	Asn	Pro	Arg	Arg	Leu	Lys	Thr	Asp	Val	Thr	Asp	Tyr	His
			660					665					670		
Ile	Asp	Gln	Val	Ser	Asn	Leu	Val	Ala	Cys	Leu	Ser	Asp	Glu	Phe	Cys
		675					680					685			
Leu	Asp	Glu	Lys	Arg	Glu	Leu	Leu	Glu	Lys	Val	Lys	Tyr	Ala	Lys	Arg
	690					695					700				
Leu	Ser	Asp	Glu	Arg	Asn	Leu	Leu	Gln	Asp	Pro	Asn	Phe	Thr	Ser	Ile
705					710					715					720
Asn	Lys	Gln	Pro	Asp	Phe	Ile	Ser	Thr	Asn	Glu	Gln	Ser	Asn	Phe	Thr
				725					730					735	
Ser	Ile	His	Glu	Gln	Ser	Glu	His	Gly	Trp	Trp	Gly	Ser	Glu	Asn	Ile
			740					745					750		
Thr	Ile	Gln	Glu	Gly	Asn	Asp	Val	Phe	Lys	Glu	Asn	Tyr	Val	Thr	Leu
		755					760					765			
Pro	Gly	Thr	Phe	Asn	Glu	Cys	Tyr	Pro	Thr	Tyr	Leu	Tyr	Gln	Lys	Ile
	770					775					780				
Gly	Glu	Ser	Glu	Leu	Lys	Ala	Tyr	Thr	Arg	Tyr	Gln	Leu	Arg	Gly	Tyr
785						790					795				800
Ile	Glu	Asp	Ser	Gln	Asp	Leu	Glu	Ile	Tyr	Leu	Ile	Arg	Tyr	Asn	Ala
				805					810					815	
Lys	His	Glu	Thr	Leu	Asp	Val	Pro	Gly	Thr	Glu	Ser	Leu	Trp	Pro	Leu
			820					825					830		
Ser	Val	Glu	Ser	Pro	Ile	Gly	Arg	Cys	Gly	Glu	Pro	Asn	Arg	Cys	Ala

835	840	845
Pro His Phe Glu Trp Asn 850	Pro Asp Leu Asp Cys 855	Ser Cys Arg Asp Gly 860
Glu Lys Cys Ala His 865	His Ser His His Phe 870	Ser Leu Asp Ile Asp Val 875 880
Gly Cys Thr Asp 885	Leu His Glu Asn Leu Gly 890	Val Trp Val Val Phe Lys 895
Ile Lys Thr 900	Gln Glu Gly His Ala Arg 905	Leu Gly Asn Leu Glu Phe Ile 910
Glu Glu Lys 915	Pro Leu Leu Gly Glu Ala Leu Ser 920	Arg Val Lys Arg Ala 925
Glu Lys Lys 930	Trp Arg Asp Lys Arg Glu Lys Leu 935	Gln Leu Glu Thr Lys 940
Arg Val Tyr Thr 945	Glu Ala Lys Glu Ala Val Asp 950 955	Ala Leu Phe Val Asp 960
Ser Gln Tyr Asp 965	Arg Leu Gln Ala Asp Thr 970	Asn Ile Gly Met Ile His 975
Ala Ala Asp 980	Lys Leu Val His Arg Ile Arg 985	Glu Ala Tyr Leu Ser Glu 990
Leu Pro Val 995	Ile Pro Gly Val Asn Ala Glu 1000	Ile Phe Glu Glu Leu Glu 1005
Gly His 1010	Ile Ile Thr Ala Ile Ser 1015	Leu Tyr Asp Ala Arg Asn Val 1020
Val Lys 1025	Asn Gly Asp Phe Asn Asn Gly 1030	Leu Thr Cys Trp Asn Val 1035
Lys Gly 1040	His Val Asp Val Gln Gln Ser 1045	His His Arg Ser Asp Leu 1050
Val Ile 1055	Pro Glu Trp Glu Ala Glu Val 1060	Ser Gln Ala Val Arg Val 1065
Cys Pro 1070	Gly Cys Gly Tyr Ile Leu Arg 1075	Val Thr Ala Tyr Lys Glu 1080



1070		1075		1080
Gly Tyr	Gly Glu Gly Cys	Val Thr Ile His Glu	Ile Glu Asn Asn	
1085		1090	1095	
Thr Asp	Glu Leu Lys Phe	Lys Asn Arg Glu Glu	Glu Glu Val Tyr	
1100		1105	1110	
Pro Thr	Asp Thr Gly Thr	Cys Asn Asp Tyr Thr	Ala His Gln Gly	
1115		1120	1125	
Thr Ala	Gly Cys Ala Asp	Ala Cys Asn Ser Arg	Asn Ala Gly Tyr	
1130		1135	1140	
Glu Asp	Ala Tyr Glu Val	Asp Thr Thr Ala Ser	Val Asn Tyr Lys	
1145		1150	1155	
Pro Thr	Tyr Glu Glu Glu	Thr Tyr Thr Asp Val	Arg Arg Asp Asn	
1160		1165	1170	
His Cys	Glu Tyr Asp Arg	Gly Tyr Val Asn Tyr	Pro Pro Val Pro	
1175		1180	1185	
Ala Gly	Tyr Val Thr Lys	Glu Leu Glu Tyr Phe	Pro Glu Thr Asp	
1190		1195	1200	
Thr Val	Trp Ile Glu Ile	Gly Glu Thr Glu Gly	Lys Phe Ile Val	
1205		1210	1215	
Asp Ser	Val Glu Leu Leu	Leu Met Glu Glu		
1220		1225		